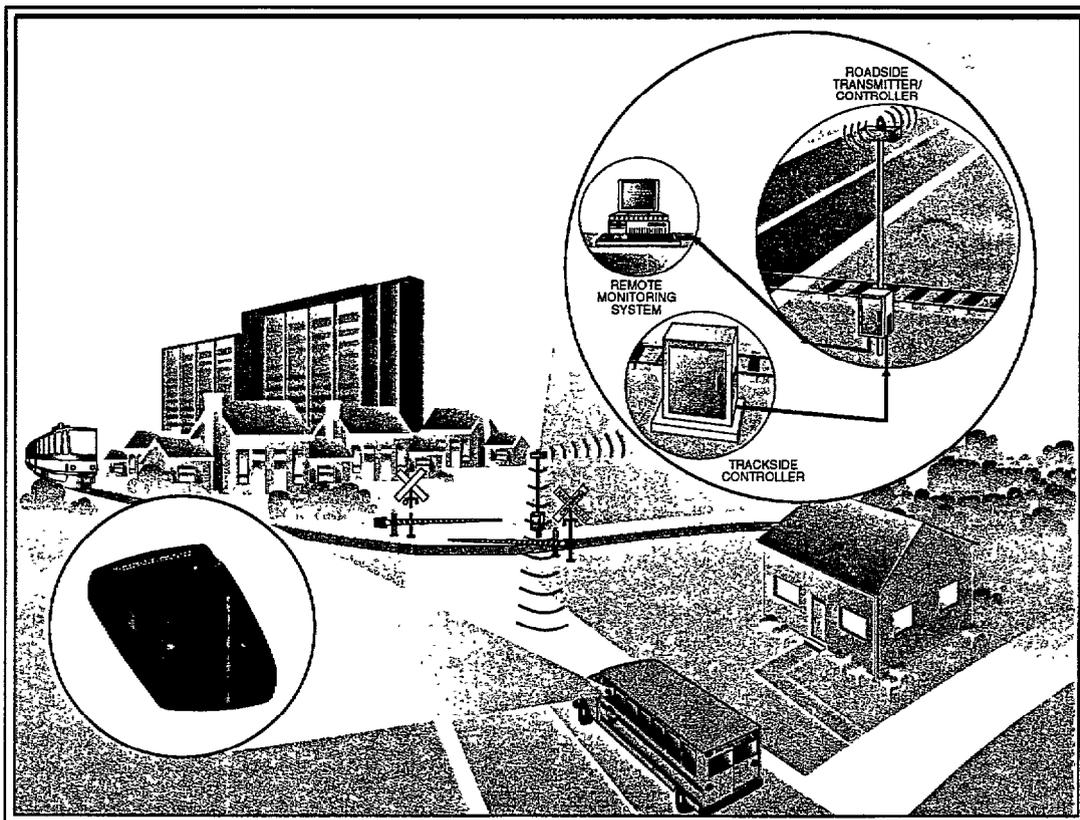




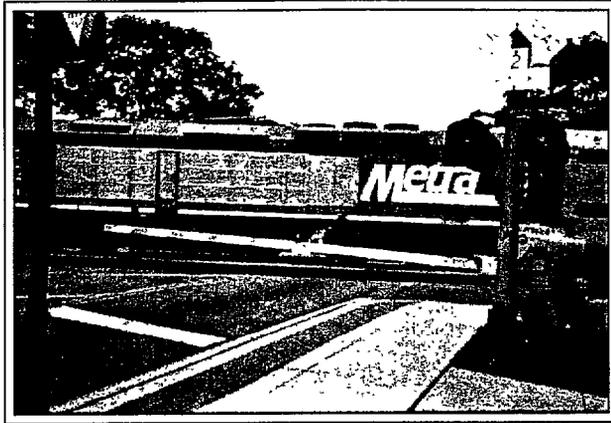
Illinois Department of Transportation
Office of Planning and Programming

**PILOT STUDY
OF
ADVISORY ON-BOARD VEHICLE WARNING SYSTEMS AT
RAILROAD GRADE CROSSINGS**

EXECUTIVE SUMMARY



150355



Background and Overview

The Pilot Study of Advisory On-Board Vehicle Warning Systems at Railroad Grade Crossings is being undertaken by the Illinois Department of Transportation (IDOT), Intelligent Transportation Systems Program Office. This pilot study seeks to provide roadway vehicles approaching railroad grade crossings with an on-board, advisory warning of a train approaching or occupying the crossing. The primary emphasis of the study is to evaluate

driver perceptions of the on-board warning system's effectiveness, including the in-vehicle receiver position, warning display methods and overall system reliability. The study will use reliable off-the-shelf technology to supplement current primary grade crossing warning systems. This project is one of a series of on-going efforts supported by the Governor and the Legislature, that seeks to further improve railroad grade crossing safety. Illinois has the third largest highway system in the nation and its rail and highway systems are among the most heavily used in terms of traffic volume. Much of this traffic is concentrated in the six-county Chicago metropolitan region where this pilot study will be performed.

IDOT has selected a contractor team led by Raytheon E-Systems to design, install, operate, and maintain the Grade Crossing Advisory Warning System. The system will be installed at five grade crossings along the Metra-Milwaukee North line, and it is anticipated that 300 vehicles will be outfitted with the on-board warning system. The vehicle population is expected to include: school buses, emergency service vehicles (police, fire, and EMS), and commercial vehicles which regularly operate in the area of the five grade crossings.

The University of Illinois at Urbana-Champaign will act as the independent evaluator of the Pilot Study. This evaluation will emphasize the reaction/perception of the drivers to the warning information provided and its understandability. Driver acceptance and trust of the on-board warning system, based on expectations and experiences, will be a critical factor in evaluating the Grade Crossing Advisory Warning System's performance.

Grade Crossing Advisory Warning

System Design

Raytheon E-Systems has selected a system design which utilizes available commercial-off-the-shelf hardware and software to implement the Grade Crossing Advisory Warning System. At the heart of that design is the Cobra Electronics Safety Alert (R) Traffic Warning System. Placed in the vehicle within the driver's normal cone of vision, the Safety Alert(R) receiver is capable of providing a visual, audible, and combination warning.



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